NFL Sabermetrics: Can it Work?

An Honors Thesis (HONRS 499)

By

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Abstract

Up until this point, the use of sabermetrics has been limited only to analyzing baseball performance. My hope is to introduce a way to find undervalued players in the National Football League using a method that blends Neil Paine's Approximate Value Method with my own ideas to form a Value Added Method. This Value Added Method should be able to compare players across the board to find which ones are outperforming their current contracts, and will be effective given more playing time in the future.

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Table of Contents

Introduction

Mike Trout or Miguel Cabrera? This question about the top two candidates in Major League Baseball's 2013 American League MVP race showed a new trend in evaluating baseball performance. On one hand, the traditionalist selection, Miguel Cabrera, had won the Triple Crown, having the highest batting average, runs batted in, and home runs in the league. On the other hand, Mike Trout had had an outstanding year after being called up from the minor leagues. He was favored to win the MVP by most sabermetricians due to computer calculations and statistical measurements. Sabermetrics, an idea invented by baseball statistician Bill James in the 1970s, is a wherein a baseball player is scientifically analyzed using statistical measures. The difference between metrics and traditional baseball statistical analysis lies in the fact that metrics uses a combination of readily available statistics to create new measures that are unusual to the casual baseball fan. For instance, Adjusted on base percentage plus slugging percentage (OPS+) is a measure used by sabermetricians to show how good a hitter is by comparing his On Base Percentage (hits+walks/at bats) and slugging percentage (singles+2*doubles+3*triples+4*home runs/at bats) to other players in the major league, and adjusting that score based on the ballpark played in. Unlike other sports, some ballparks are known as advantageous for hitters, or for pitchers. For example, Boston's Fenway Park has a vast left field wall, known as 'The Green Monster' to stop the ball from leaving the park. If the ball hits the wall and falls back into play, it is not a home run. In most parks, there is no such wall, and it would be a home run. Thus, it is a more of a pitcher's park because of the inability to hit over the Monster. It is fairly easy to calculate the On Base Percentage (OBP) and the Slugging Percentage (SLG), but not so easy to recreate the OPS+. However, it is another statistic that is used to rank hitters in Major League Baseball. A number of other statistics to rate player performance include weighted on base

average (wOBA), weighted runs created plus (wRC+), win shares, runs created, and Brock2. Up until 2003, however, these statistics generally went unnoticed. Then the era of 'Moneyball' began.

Moneyball was a concept created by Billy Beane of the Oakland Athletics. Unlike most sports, baseball has no salary cap for its players; however much the club can afford to pay is how much they have for that year. Unfortunately, this helps a few clubs with large payrolls stay on top for many years at a time as they are able to buy the best players. In 2002, the Oakland Athletics were not one of those teams. They had one of the smallest payrolls in the major leagues and still had to find a way to compete. Their general manager, Billy Beane, turned to a little-recognized method in order to do this: he found Bill James' method from the 1970s, and tried to apply it to find players who were strong in certain statistics that helped create more runs and thus, win more games. He found that many of these players were players that he could sign cheaply but would be effective in winning. So that's what Billy Beane did. And it worked; the A's made the playoffs in 2002 and 2003 despite having the 3rd lowest payroll in the MLB.

At this time, the sabermetrics revolution has changed the face of baseball forever and has caused many clubs to hire full-time statisticians to research and recommend players to the organization that can help win games. However, at the current time, this revolution is a baseball-only idea. There are so many statistics kept in baseball that it makes things easy to quantify. Not only that, but players generally play both offense and defense, so by some methods, it is fairly easy to compare first basemen and third basemen, outfielders to catchers, and even Babe Ruth's 1926 season to Mike Trout's 2012 season. But I wanted to explore something different in this paper. I wanted to go where very few had gone before. To many, it seemed like a task that was absolutely insane. But…could I possibly transfer some of the sabermetric ideas from the field of

Major League Baseball and project them onto the National Football League? Could I compare a linebacker's season to a quarterback's season? Could I compare Tom Brady to Peyton Manning? Could I compare Barry Sanders's 1998 season to Adrian Peterson's 2012 season? Could I use a Moneyball approach to finding underpaid or little-used players that could help teams win games? Well, I had to try.

Fortunately, even though this is a new concept in the world of statistics and even sabermetrics, there has been some groundwork done already. The people behind Pro Football Reference, Football Outsiders, and Advanced NFL Stats deserve credit for compiling all the statistics and some methods in creating this formula for calculating what I call Value Added Method of ranking players to see their true value. Before we begin to use my method, however, we must rank the players first, then weight their ranking by their past year salary to see which players are undervalued.

The Offense

The first thing to note about the Value Added Method (from now on referred to as VAM), is that we first break down point values into offense and defense. Supposing that a 100 point offense is a league-average offense, each offense receives 100*(Points scored/League average of points scored) to spread to its players throughout the season. The offense is broken down into two simple categories: offensive linemen (two guards, two tackles, and a center) and skill position players (quarterbacks, halfbacks, fullbacks, tight ends, wide receivers, etc.). The offense, as noted by Neil Paine of Pro Football Reference, performs four different duties: "(1) blocking, (2) running, (3) pass throwing, (4) pass catching". We then must assign percentages to each player according to their duties. Every offensive lineman is 100% blocking. Every wide receiver is 100% pass catching. A quick survey of the top 20 running backs this past year shows that a running back is 77.4% rushing, 22.6% receiving, and a quarterback (by similar measure as running back) is 93.9% passing, 6.1% rushing. This, of course, will be different from year to year, but since the focus is not to compare years, but players in the same year, there would be adjustments made to this percentage every year. A tight end is a very difficult position to categorize by percentages because there are different types of players in this position. Some players, like Delanie Walker of the 49ers, primarily focus on blocking, while others, such as Rob Gronkowski of the Patriots, focus more on receiving. Unfortunately, there are not statistics available (to my knowledge) of the number of plays played by a specific tight end this season; this would make it possible to roughly calculate percentage of plays that the tight end acted as a pass-catcher or a blocker. Because of this lack of data, we'll have to estimate the percentage of blocking and catching for a tight end. Let's say 60% pass-catching and 40% blocking.

So how do we then break down our offensive points by position, and then by player? An idea that I came across suggested that we look at the percentage of salary used by each team on a certain position, and call that the player's value, as seen by the general manager. After studying the teams, I found that the breakdown was this:

QB: 18.2%

RB: 15.4%

OL: 33.8%

TE: 10.4%

WR: 22.2%

Note that these values are as a percentage of the offense, not as a percentage of the whole team. We'll worry about defense later. This is how we will break down the offensive points into the different positions. Since we are still looking at the players through the lens of the four categories, let us now look at the percentage of points given to blocking, to pass receiving, to pass throwing, and to running. An offensive lineman is 100% blocking, so we take the offensive line 100%*33.8% salary= 33.8%. A tight end was defined as 40% blocking, so we take the tight end 40%*10.4% salary= 4.2%. Therefore, 33.8%+4.2%= 38% of the total offensive points go towards blocking. Pass receiving is 100% for a wide receiver, 60% for a tight end, and 22.6% for a running back. So we have wide receiver 100%*22.2% salary= 22.2%, a tight end 60%*10.4% salary= 6.2%, and running back 22.6%*15.4% salary= 3.5%. Thus, 22.2%+6.2%+3.5%= 31.9% of the total offensive points go towards pass receiving. Pass throwing is done exclusively by a quarterback, who throws passes 93.9% of the time. Quarterbacks command 18.2% of NFL salaries. Thus, quarterback 93.9%*18.2% salary= 17.1% of the total offensive points go towards pass throwing. Finally, running is done 77.4% of the time by a running back and 6.1% of the

time by a quarterback. Thus, running back 77.4%*15.4% salary= 12.0% and quarterback 6.1%*18.2% salary= 1.1% adds up to 13.1% total offensive points towards running.

We now have the percentages of total points by both category and by position, so now we need to assign these points to individual players. Let's start with pass throwing, as it will be easiest. The way that I chose to break up the points is the quarterback's yards per game/(quarterback's yards per game+ other quarterbacks yards per game on the same team). An important facet is that for quarterbacks to be considered, they must throw at least 20 passes. It is hard to say how a quarterback who threw and completed one pass would fare through a whole season. It is easier to say how a quarterback who played one whole game would do in other games. For example, the Pittsburgh Steelers had three quarterbacks throw at least 20 passes during the 2012-13 season: Ben Roethlisberger, Byron Leftwich, and Charlie Batch. Roethlisberger threw for 237.2 yards per game, compared to 231.5 for Batch and 124 for Leftwich. Roethlisberger would get 237.2/(237.2+231.5+124)%, or 40.0%, of the pass throwing points. The reason I chose yards per game was that it was a statistic that could be easily found, and was applicable to throwers, runners, and receivers. Also, it does not penalize a player who does not play as much, as this statistic is per game, and not based on the overall season. The major problem with most metrics is that they rely on players playing a lot to show value. When looking for undervalued players, you are looking at players who generally do not get to play as much. Therefore, you must even the playing field, so to speak. For running, the formula is based on yards per game, with a minimum of 20 carries. Once again, it's enough to eliminate the runner who has one rush for 30 yards, but enough to get a good sample throughout a season. The formula is: yards per game/(yards per game + yards per game for other runners on the same team). If we looked at the Minnesota Vikings runners, we would see three rushers ran 20 or more

times: Adrian Peterson, Christian Ponder, and Toby Gerhardt. Peterson had 131.1 yards per game, Ponder had 15.8, and Gerhardt had 10.6. Adrian Peterson would receive 131.1/(131.1+15.8+10.6)%, or 83.2%, of the running points for his efforts. I believe this works also because each player is running behind approximately the same offensive line, so we can somewhat fairly compare their yards per game statistics.

For pass catchers, I am using the yards per game statistic as my method of measuring players against each other. I think this is a better method than yards per catch because more than other positions, there is diversification in receiving. Some receivers are specifically meant to catch passes that are thrown 20 or more yards. Some are specifically meant to catch passes that are 10 or less yards away. Therefore, I found that yards per game was a better measure of players. Similar to the rushing and pass throwing methods, the formula is: yards per game/(yards per game/average yards per game for receivers on the same team). The San Francisco 49ers had six players who caught more than 20 passes last year: Michael Crabtree, Vernon Davis, Mario Manningham, Randy Moss, Delanie Walker, and Frank Gore. They received 69.1, 34.3, 37.4, 27.1, 21.5, and 14.6 yards per game, respectively. This means that Michael Crabtree will receive 69.1/(69.1+34.3+37.4+27.1+21.5+14.6)% of the receiving points, or 33.9%.

Finally, we come to the difficult task of quantifying players in the blocking category. Because there are not many statistics for blocking (or lack thereof), it is nearly impossible to rank individual blockers against each other, let alone against other players on the offense or defense. Linemen are especially difficult because their job is solely blocking, and one would have to watch every play of a season to quantify how good the lineman did. The only way to see a higher value in one linemen in particular is whether they start for their team and whether they make the Pro Bowl. Therefore, a good method to use is (5*games started+1* games played)*

position multiplier*Pro Bowl multiplier. As far as a position multiplier goes, it should be .4 for a tight end and 1.2 for offensive linemen. This position multiplier attempts to differentiate linemen from tight ends because their blocking level is not the same, and thus, the linemen get 1.2 and the tight ends get .4. Any player that makes the Pro Bowl should be multiplied by an additional 1.2 for their efforts. It would not be just to have the same blocking score for a player who started all 16 games but did not make the Pro Bowl and a player who started all 16 games and made the Pro Bowl. Similarly, there should be enough separation in scoring that starts should be valued much higher than simply playing in games. Starts show that a player is worth more.

The Defense

To start, just like offense, we must first begin with points for team defense. Similar to offense, the defense receives 100* (Points allowed/League average of points allowed). The average defense gets 100 points to spread among its 11 players. In defense, there are two player groups: "the front seven" and defensive backs. I found that because of the way defense is played, these two are all you need. It is generally difficult to differentiate a safety from a cornerback because different defensive schemes may have defensive backs playing in a number of positions, so therefore, I grouped them together. Also, there are so many defensive schemes that are run in the NFL that sometimes a defense has three linemen and four linebackers and sometimes they have four linemen and three linebackers. Sometimes there are five linemen. The main thing that can be agreed upon is that the number of linebackers and linemen on the field generally adds up to seven, referred to as the front seven. Doing a similar salary cap analysis as I did with the offense, the front seven and defensive back points are split like this:

Front Seven	64.90%
Defensive Backs	35.10%

There is only one formula for defense. The reason for this is that the statistics for defense generally can be attained by all players. For example, sacks, tackles, interceptions, fumble recoveries, hurries, etc. can be achieved by any player, whereas on offense, only certain players can catch the ball or run with the ball. Therefore, it is only necessary to have one formula for the defensive side of the ball. The formula is: (Games played + Sacks+ Forced fumbles+ Fumble recoveries + Interceptions+ 5*Defensive TDs+Tackles/Game). Defensive touchdowns are weighted heavily due to their rarity and often, their ability to change the game dramatically. Based on that point system, the front seven get: (Individual points/(Sum of front seven individual points))*64.9% of total defense points and the secondary gets (Individual points/(Sum of defensive back individual points))*35.1% of total defense points.

For example, let's look at the Pittsburgh Steelers defense for 2012. Linebacker Larry Foote played in all 16 games, had 113 tackles, 4 sacks, 2 forced fumbles, and 2 fumble recoveries. That gives him a total of (16+(113/16)+4+2+2)= 31.1 points. Safety Ryan Clark played in 15 games, had 102 tackles, 2 forced fumbles, 1 fumble recovery, and 2 interceptions. That gives him a total of (15+(102/15)+2+1+2)= 26.8 points. Those point totals would then be divided by the total defensive points for the front seven for Foote and defensive backs for Clark.

Salary Factor

It is important to look at the salary of a player to see if they are undervalued. The way that I did that was this: I took the player's final point total from their individual points and divided it by their yearly salary in millions. That gave me an 'efficiency score' to show which players were outputting the most based on their salaries. Any player who had an efficiency score of 9 or more is well undervalued. A player with an efficiency score between 5-8.9 is slightly undervalued. A player with an efficiency score between 2-4.9 is about correctly valued, and any

lower than 2 is overvalued. For example, Jacksonville Jaguars wide receiver Cecil Shorts ended with 7 of his team's offensive points. He was only paid $615,750 this past year, which is very little for a receiver. Therefore, his efficiency score was 7/.61575= 11.4. That categorizes him at well undervalued, and should he become a free agent, other teams should certainly look to sign him.

The Types of Players That Will Be Overvalued

This method, unfortunately, is not perfect. There are a lot of types of players who will be overvalued and undervalued. The first type of player that will be overvalued is the player in a low-salary year. When a football player signs for $50 million dollars over five years, that does not mean they are getting $10 million per year. Often, contracts are front-loaded or back-loaded, so a player may get $15 million the first year, $12 million the second, $10 million the third, $8 million the fourth, and $5 million the fifth year. If a player is in the final year of his contract but is still performing at a high level, he tends to be overvalued in this method because he is not making as much during one year as he has in past years, but is still producing highly. Even if he is not producing highly, his efficiency scores will look better.

The second type of player that will be overvalued is quarterbacks with bad backups (or no backups). For example, Tom Brady played every snap of the 2012-2013 season except for about 10 snaps. His backup quarterback did not qualify for the 20 passes throughout the season requirement for rating quarterbacks, and thus, Tom Brady received 100% of the pass throwing points for the Patriots. However, if his backup had thrown 20 passes, he would have been eligible, and would have taken points away from Brady.

The Types of Players That Will Be Undervalued

There are many more types of players that will be undervalued using this method. One type of player that will be undervalued are tight ends that are good pass catchers. Tight ends were defined as 60% pass catching and 40% blocking, but a tight end that is an 80% pass catcher will be undervalued.

Star players on bad offensive or defensive players will be undervalued. The reason that this is true is because the worst offenses and defenses only get around 70 points to divvy up among players. A star player will get the most individual points on his offense or defense, but if he is truly that good, he would have gotten more individual points on a better offense or defense. Also, these players get paid more, so it appears that they are not great values, even though they may be. A star linebacker may be stuck on a bad team, but the rest of his teammates may be bringing down the total defensive score by their play. Because of this, the player looks like he is overvalued, but may not be.

Also, other players that will be undervalued are any offensive players who do not fit the mold of their four category breakdown. For example, running backs and receivers who are especially good blockers do not get extra individual points for blocking. The fullback position, while rare in the NFL, is definitely undervalued. In this model, there is no fullback position, which means that any player that plays fullback will not get points for blocking, but only for running. Many fullbacks do not run that much, so they are undervalued quite a bit. Similarly, wide receivers who run with the ball (Wildcat players, or players who run with the ball in reverses) do not get extra points for running because they are defined as 100% pass catching.

Full Team Example

I will now attempt to describe a full team example, complete with explanations and calculations, to show exactly what goes into this model. The team that I will be using is the Jacksonville Jaguars, one of the worst teams in the league in 2012. However, this example will illustrate a number of players who are overvalued, undervalued, and why.

The first step is to break the team points down. The Jaguars scored 255 points on offense compared to a 2012-2013 team average of 346.1 points. Therefore, their offense has 73.678 points to be assigned to individual players. If you recall from the offensive explanation, blocking is 38% of the points, running is 13.1%, pass catching is 31.9%, and pass throwing is 17.1%. For the Jaguars, this translates to the following values:

Blocking	28.00
Running	9.65
Catching	23.50
Throwing	12.60

For pass throwing, Blaine Gabbert and Chad Henne were the two quarterbacks that qualified by throwing more than 20 passes. Gabbert had 150.4 yards per game and Henne had 191.5. Gabbert's individual points score was (150.4/(150.4+191.5))*12.60 for throwing points, which equaled 5.5 individual points. Henne's individual points were (191.5/(150.4+191.5))*12.60, which equaled 7.1 individual points.

For running, the Jaguars had five runners who qualified with more than 20 carries: Rashad Jennings, Maurice Jones-Drew, Richard Murphy, Montell Owens, and Jalen Parmele. Rashad Jennings had 28.3 yards per game, which made his points (28.3/(69+28.3+16.1+13+18.4))*9.65 running points for a total of 1.9 individual points. These divisors mark the number of yards per game the other runners had. By the same method, Maurice

Jones-Drew had 4.6 individual points, while Murphy, Owens, and Parmele had 1.2, 1.1, and .9 individual points respectively.

In pass catching, five receivers also met the minimum 20 passes caught requirements. Cecil Shorts, Justin Blackmon, Jordan Shipley, Laurent Robinson, and Marcedes Lewis had yard per game averages of 69.9, 54.1, 40.7, 36, and 33.8 yards per game, respectively. Cecil Shorts' individual points come to (69.9/(69.9+54.1+40.7+36+33.8))*23.5 points for pass catching for a total of 7.0 individual points. By similar methods, Blackmon, Shipley, Robinson, and Lewis received 5.4, 4.1, 3.6, and 3.4 individual points respectively.

The blocking, as noted earlier, is based on the formula (Games played+5*Games started)*Position multiplier*Pro Bowl multiplier. No player on the Jaguars made the Pro Bowl this year, so we do not need to worry about that. As an example, Eugene Monroe, offensive tackle, started all 16 games, and thus played in all 16. His position multiplier is 1.2. Therefore, his percentage points score is (16+16*5)*1.2= 115.2. This is divided by the sum of all blocker's points to get his percentage of the total blocking points for the team. This percentage is 17.2% of the points, which translates to 17.2%*28= 4.8 individual points.

On defense, recall that we also start with 100 points. However, the Jaguars defense allowed 444 points compared to the league average of 346.1 points allowed. Therefore, the Jaguars defense only received (346.1/444)*100= 77.95 team defense points. However, this is further broken down in between the Front Seven and the Defensive Back categories. The Front Seven category gets 64.9% of the total defensive points, and the Defensive Backs receive 35.1% of the points. In this example, Paul Posluszny received 16+139/16+2+3+5*0+2+0+5*0= 31.7 percentage points. This was then divided by the sum of Front Seven players' percentage points

and multiplied by the 64.9% that is assigned to the Front Seven to get 6.3 individual points. This same formula produced the individual points in the table below.

NAME	POS	GP	TOT	SACK	INT	TD	FF	REC	TD	Percentage Points	Individual Points
Paul Posluszny	FS	16	139	2	3	0	2	0	0	31.7	**6.3**
Russell Allen	FS	16	131	0.5	0	0	0	1	0	25.7	**5.1**
Dawan Landry	DB	16	100	0	1	0	0	0	0	23.3	**3.6**
Derek Cox	DB	12	60	0	4	0	1	0	0	22.0	**3.4**
Mike Harris	DB	15	55	1	1	0	0	0	0	20.7	**3.2**
Chris Prosinski	DB	16	53	0	1	0	0	0	0	20.3	**3.2**
Aaron Ross	DB	14	46	0	0	0	0	0	0	17.3	**2.7**
C.J. Mosley	FS	16	45	2.5	0	0	1	3	0	25.3	**5.0**
Tyson Alualu	FS	16	45	3.5	0	0	0	1	0	23.3	**4.6**
Jeremy Mincey	FS	16	41	3	0	0	2	1	0	24.6	**4.9**
Kyle Bosworth	FS	16	37	0	1	0	0	0	0	19.3	**3.8**
Terrance Knighton	FS	16	32	2	0	0	2	0	0	22.0	**4.4**
Austen Lane	FS	11	32	2	0	0	1	0	0	16.9	**3.3**
Dwight Lowery	DB	9	31	0	1	0	0	1	0	14.4	**2.3**
Julian Stanford	FS	16	23	0	0	0	0	0	0	17.4	**3.4**
Rashean Mathis	DB	12	20	0	0	0	0	0	0	13.7	**2.1**
William Middleton	DB	10	20	0	0	0	0	0	0	12.0	**1.9**
George Selvie	FS	9	15	1	0	0	0	0	0	11.7	**2.3**
Andre Branch	FS	13	12	1	0	0	1	1	0	16.9	**3.3**
Antwon Blake	DB	16	12	0	0	0	0	1	0	17.8	**2.8**
Jason Babin	FS	5	11	1.5	0	0	2	1	0	11.7	**2.3**
D'Anthony Smith	FS	8	10	0	0	0	0	0	0	9.3	**1.8**
Kevin Rutland	DB	13	10	0	0	0	0	0	0	13.8	**2.2**

Finally, we must compare these individual points to the salary of the player for the 2012-2013 season. Paul Posluszny received $7 million this year, which puts him in the overvalued category because his 6.3 individual points/$7 million salary is less than 1. In the following table, I have calculated all efficiency scores and listed those greater than zero. Highlighted in green the players which are well undervalued, the player in yellow that are slightly undervalued, the players in orange that are correctly valued, and the players in red that are overvalued.

NAME	POS	Individual Points	Salary	Efficiency Score
Cecil Shorts	WR	7.0	615,750	11.4
Kevin Rutland	DB	2.2	232,500	9.3
Kyle Bosworth	FS	3.8	415,667	9.2
Julian Stanford	FS	3.4	390,000	8.8
Jordan Shipley	WR	4.1	490,000	8.3
Cameron Bradfield	OL	3.7	465,000	7.9
Mike Harris	DB	3.2	418,497	7.7
Antwon Blake	DB	2.8	390,000	7.1
Michael Brewster	C	2.4	390,000	6.1
Austen Lane	FS	3.3	586,000	5.7
Chris Prosinski	DB	3.2	600,000	5.6
George Selvie	FS	2.3	540,000	4.3
Russell Allen	FS	5.1	1.3 mil	3.9
C.J. Mosley	FS	5.0	1.3 mil	3.9
Andre Branch	FS	3.3	925,000	3.6
Rashad Jennings	RB	1.9	574,500	3.3
Richard Murphy	RB	1.2	390,000	3.1
Terrance Knighton	FS	4.4	1.5 mil	2.9
Aaron Ross	DB	2.7	950,000	2.8
Chad Henne	QB	6.1	2.6 mil	2.7
D'Anthony Smith	FS	1.8	702,500	2.6
Derek Cox	DB	3.4	1.5 mil	2.3
Blaine Gabbert	QB	6.5	2.7 mil	2.1

NAME	POS	Individual Points	Salary	Efficiency Score
Dawan Landry	DB	3.6	1.9 mil	1.9
Austin Pasztor	OL	0.9	480,000	1.9
Guy Whimper	OT	2.3	1.4 mil	1.7
Justin Blackmon	WR	5.4	3.3 mil	1.6
Jeremy Mincey	FS	4.9	3 mil	1.6
William Middleton	DB	1.9	1.2 mil	1.6
Eben Britton	OL	1.8	1.2 mil	1.5
Jalen Parmele	RB	0.9	615,000	1.4
Dwight Lowery	DB	2.3	1.75 mil	1.3
Brad Meester	C	4.8	3.7 mil	1.3
Zach Potter	TE	0.7	540,000	1.3
Steve Vallos	C	0.5	306,000	1.3
Uche Nwaneri	G	4.5	3.9 mil	1.2
Rashean Mathis	DB	2.1	2 mil	1.1
Tyson Alualu	FS	4.6	4.7 mil	1.0
Eugene Monroe	OT	4.8	5.0 mil	1.0
Paul Posluszny	FS	6.3	7 mil.	0.9
Laurent Robinson	WR	3.6	4.6 mil	0.8
Maurice Jones-Drew	RB	4.6	6.3 mil	0.7
Marcedes Lewis	TE	4.9	9.5 mil	0.5
Montell Owens	RB	1.1	2.7 mil	0.4
Jason Babin	FS	2.3	6.0 mil	0.4

One other point of interest is the ability to compare individual points across the league. We should be able to reasonably say that the player with the highest individual point total on every team was the player that added the most value to his team. We should be able to compare point totals from team to team and between any positions, so we can determine whether Maurice Jones-Drew or Arian Foster had better years, or whether Brian Urlacher or Jason Witten had better years. We are then able to see which players are outperforming their contracts and are due for raises (or small contracts) in the future.

Jacksonville Jaguars Conclusions

The real question when dealing with metrics is whether the metric is usable. If the metric is not usable, then what is the point of having it? In this full team example, there are many lessons to be learned:

1) Hold onto the top 3 most efficient players. One of the reasons that Jacksonville is doing poorly is because of their efficiency distribution. They clearly have many more players who they overvalued than undervalued. Currently, Shorts and Rutland are under contract with the Jaguars, but Bosworth is still a free agent. I would suggest that the Jaguars sign him and give him more playing time.
2) Try to get rid of some players in the overvalued category. Two such players are Marcedes Lewis and Jason Babin. Lewis has been a Jacksonville mainstay, but he is not worth the money that he is being paid. The Jaguars need an elite tight end if they are going to spend that kind of money, and Lewis has his moments, but the team has much cheaper and better options, I feel. Babin has only been part of the team for one year, and may still be learning the defensive scheme. It might be worthwhile to hold onto him, but he is aging and may be worth looking at for a restructured contract so he is not paid as much. That should help his efficiency score.
3) Choose Chad Henne to start. One of the big controversies on the team this past year was whether Chad Henne or Blaine Gabbert should start. The numbers appear to favor Henne in this model. Henne has a higher individual points and efficiency rating, at 7.1 and 2.7 to Gabbert's 5.5 and 2.1. Henne also seemed to be the fan favorite as the season wore on, and this model agrees with the fans. As an added bonus, Henne also happens to be making less money, but in determining who starts that is not much of an issue: it only

matters who is producing more. Henne averages 40 yards per game more than Gabbert, and thus is the favorite.

Final Conclusions

This system which I devised is not perfect. In fact, no metric is perfect. I think it is a good metric, but as I've acknowledged, there are obvious shortcomings. There is always debate on whether a certain statistic is being used too much, or too little. The interesting thing about developing metrics, in my opinion, is that everyone can make their own and no one is necessarily wrong. Even though this is how I would value players, I challenge anyone reading this paper to look into creating their own system, especially if you disagree with my findings. Billy Beane, in a recent interview at Ball State University, was asked about the use of sabermetrics in other sports. He said, "Numbers have relevance everywhere." Numbers do have relevance everywhere, and this effect cannot be overlooked. However, as this research is in its infant stages, I hope that anyone reading this will have the interest to continue moving sabermetrics in the NFL forward, as it will never be a complete process.

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